

ICC Evaluation Service, Inc.
www.icc-es.org

Business/Regional Office ■ 5360 Workman Mill Road, Whittier, California 90601 ■ (562) 699-0543
Regional Office ■ 900 Montclair Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800
Regional Office ■ 4051 West Flossmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

DIVISION: 09—FINISHES
Section: 09260—Gypsum Board Assemblies

REPORT HOLDER:

GYPSUM ASSOCIATION
810 FIRST STREET, NE, SUITE 510
WASHINGTON, DC 20002
(202) 289-5440
www.gypsum.org

EVALUATION SUBJECT:

**GYPSUM WALL AND CEILING ASSEMBLIES AND
GYPSUM BOARD INTERIOR AND EXTERIOR
APPLICATIONS**

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Interior finish
- Fire-resistance
- Sound control
- Structural
- Thermal barrier
- Exterior finish

2.0 USES

This evaluation report recognizes gypsum products for specific interior and exterior applications, and also recognizes various load-bearing and nonload-bearing fire-resistance-rated wall, floor-ceiling and roof-ceiling gypsum board assemblies. Some assemblies also provide sound transmission control. Structural evaluation is limited to transverse loading.

3.0 DESCRIPTION

The gypsum products and fire-resistance-rated wall, floor-ceiling and roof-ceiling assemblies must conform to Section 4.0 of this report using materials as described below.

3.1 Water-resistant Gypsum Backing Board:

The backing board must conform to ASTM C 1396.

3.2 Gypsum Wallboard:

The wallboard must conform to ASTM C 1396.

3.3 Exterior Gypsum Soffit Board:

The soffit board must conform to ASTM C 1396.

3.4 Gypsum Sheathing Board:

The sheathing board must conform to ASTM C 1396.

3.5 Gypsum Backing Board, Core Board and Gypsum Shaftliner Board:

The backing, core board and shaftliner must conform to ASTM C 1396.

3.6 Gypsum Base for Veneer Plasters:

The gypsum base must conform to ASTM C 1396.

3.7 Gypsum Ceiling Board:

The ceiling board must conform to ASTM C 1396.

3.8 Screws:

Type S, Type W and Type G screws specified for the assemblies described in this report must comply with ASTM C 1002 or ASTM C 954.

4.0 INSTALLATION

4.1 General:

Installation of the gypsum board wall and ceiling assemblies and interior and exterior applications as described below must comply with this report and the Gypsum Association's published installation instructions. The Gypsum Association's published installation instructions must be available at the jobsite at all times during installation.

The gypsum products recognized in this report must be assembled and installed in accordance with IBC Section 2508.1 or IRC Section R702.3.1, as applicable. Gypsum board must not be used in areas subject to continuous high humidity, such as saunas, steam rooms, gang shower rooms or indoor pools.

4.2 Fire-resistance-rated Wall, Floor-ceiling and Roof-ceiling Gypsum Board Assemblies:

4.2.1 General Fire-resistance-rated Design Information:

- a. The axial design stress of the wood studs used in fire-resistive construction must be reduced to $0.78F_c$, calculated in accordance with Section 3.6 of the American Forest & Paper Association's National Design Specification for Wood Construction (NDS), with the maximum design stress not greater than 78 percent of the calculated allowable stress with studs having a slenderness ratio, l/d , of 33.
- b. When gypsum board is used in fire-resistive floor/ceiling, roof/ceiling, or wall assemblies, the board thickness, type of gypsum board, and construction of the assembly must comply with Chapter 7 of the IBC; Section R317 of the

ES REPORTS™ are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



IRC; the 18th edition of the Gypsum Association Fire Resistance Design Manual; or current ICC-ES evaluation reports.

- c. Except where otherwise noted in this report, any of the gypsum boards listed in Section 3.0, of the same size, thickness, and core type specified, may be used. The gypsum base for veneer plasters must be covered with minimum $\frac{1}{16}$ -inch-thick (1.6 mm) gypsum veneer plaster.
- d. Control joints such as those shown in Figure 1 are permitted to be used in one-hour or two-hour fire-resistance-rated construction described in this report or described in Table 720.1(2) of the IBC. The joints are permitted to be used on bearing or nonbearing walls of wood or steel construction.

4.2.2 Fire-resistance-rated Assemblies: Generic fire-resistance-rated systems (those not designated as proprietary in the listing), as listed in the Gypsum Association Fire Resistance Design Manual, 18th edition, are recognized for use.

4.2.2.1 Two-hour Gypsum Board Solid Partition for Shaft Enclosure: The assembly is similar to Item 9-1.1 of Table 720.1(2) of the IBC, except that the gypsum shaftliner is first installed onto 2-by-2-inch (51 by 51 mm) steel floor and ceiling runners using Type S screws spaced 12 inches (305 mm) on center. The runners must be anchored at 24 inches (610 mm) on center, using approved fasteners. Two layers of $\frac{1}{2}$ -inch-thick (12.7 mm), Type X gypsum board installed with long edges parallel to wrapped coreboard edges are laminated to one side of the coreboard. All vertical joints must be offset at least 3 inches (76 mm).

The assembly may also be constructed with four layers of $\frac{1}{2}$ -inch-thick (12.7 mm), Type X gypsum board, laminated together, with the joints of each layer offset at least 3 inches (76 mm) from the adjoining layers. The laminating compound must comply with ASTM C 475 or be an approved powder setting-type compound. The first layer is attached to the 2-by-2-inch (51 by 51 mm) steel floor and ceiling angle runners using one $\frac{7}{8}$ -inch-long (22 mm), Type S screw at each corner. The second layer is then fully laminated to the first layer and screw-attached to the runners using $1\frac{5}{16}$ -inch-long (49.2 mm), Type S screws spaced 12 inches (305 mm) on center. The third layer is laminated in the same manner as the second layer, and is further attached using $1\frac{1}{2}$ -inch-long (38 mm), Type G screws spaced 24 inches (610 mm) on center along the edges and along the center, and held back $2\frac{1}{2}$ inches (63.5 mm) from the top and bottom edges. The fourth layer is fully laminated, with all of the vertical joints being offset.

4.2.2.2 One-hour Gypsum Board Partition with Wood Framing: The framing consists of nominal 2-by-4 wood studs spaced 16 inches (406 mm) on center, with blocking of the same size at midheight. Each side of the wall is covered with a single layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board applied either perpendicular to or parallel to the framing. The gypsum board is attached to the framing using No. 6 by $1\frac{1}{4}$ -inch-long (31.7 mm), buglehead, Type W screws spaced 8 inches (203 mm) on center along end joints and 12 inches (305 mm) on center in the field. Screws are placed no closer than $\frac{1}{2}$ inch (12.7 mm) to end or edge joints. Vertical joints are staggered 16 inches (406 mm) on center, and horizontal joints are staggered 12 inches (305 mm) on center on each side. The joints are taped with joint tape and covered with two coats of joint compound. Screw heads are covered with joint compound.

4.2.2.3 One-hour Gypsum Board Staggered-stud Bearing Partition: The framing consists of two rows of nominal 2-by-3 wood studs spaced at 16 inches (406 mm) on center or

nominal 2-by-4 wood studs spaced at 24 inches (610 mm) on center, with blocking of the same size at midheight. Studs in opposite rows are staggered 8 inches (203 mm) or 12 inches (305 mm) on center, and the rows are spaced a minimum of 1 inch (25.4 mm) apart. The plates for each row may be of the same size and material, or common plates may be used for the two rows. The exterior face of each row is then covered with $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board applied horizontally or vertically using 6d cement-coated cooler nails at 7 inches (178 mm) on center, with end joints on nailing members. Fire-blocks, when required, may be of mineral wool batts, 2 inches (51 mm) thick in the intervening spaces between the two rows of studs, or $\frac{1}{2}$ -inch-thick (12.7 mm) gypsum board. Where nominally 2-by-3 studs are used, they must be stress-graded lumber as set forth in Tables 4A through 4D of the NDS.

4.2.2.4 One-hour Gypsum Board Floor-ceiling or Roof-ceiling Assembly with Wood Framing: The ceiling construction is identical to assembly FC5406 in the Gypsum Association Fire Resistance Design Manual. Alternate framing consists of lower chords of trussed rafters, or pitched or flat trusses spaced a maximum of 24 inches (610 mm) on center. Alternate fasteners, having the same spacing as the screws, are $1\frac{7}{8}$ -inch-long (47.6 mm), 6d, cooler, box or wallboard nails for the base ply, and $2\frac{3}{8}$ -inch-long (60 mm), 8d, cooler, box or wallboard nails for the face ply. Type G screws, $1\frac{1}{2}$ inches (38 mm) long, are still required at the end joints of the gypsum board face layer.

4.2.2.5 One-hour Gypsum Board Roof-ceiling Assembly with Steel Framing: The assembly consists of steel roof framing with roof purlins spaced and designed to support a noncombustible ceiling grid to which is attached double $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board. Cold-rolled steel main runner channels at 4 feet (1219 mm) on center, with size and hanger support complying with Section 2506.2.1 of the IBC, are hung from the steel framing. Number 25 gage, $\frac{7}{8}$ -inch-deep (22 mm), rigid cross-furring channels are spaced 24 inches (610 mm) on center. Furring channels are wire-tied to the runner channels using loops of No. 16 gage wire. The base layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board is applied at right angles to the furring channels using 1-inch-long (25.4 mm), Type S screws spaced at 24 inches (610 mm) on center. The face layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board is applied at right angles to the furring channels, using $1\frac{5}{8}$ -inch-long (41.3 mm), Type S screws spaced at 12 inches (305 mm) on center at joints, driven through the base layer and into the intermediate furring channels. Face layer joints are offset 24 inches (610 mm) from the base layer joints. One-and-one-half-inch-long (38 mm), Type G screws, placed 2 inches (51 mm) from either side of the face layer end joints, are also installed at 12 inches (305 mm) on center. The addition of insulation to the assembly is permitted, provided a minimum plenum space of 10 inches (254 mm) is maintained between the underside of the insulation and the gypsum panel.

4.2.2.6 Two-hour Gypsum Board Bearing Wall with Minimum STC (Sound Transmission Class) 50 Sound Rating: The construction consists of nominally 2-by-4 wood studs spaced 16 inches (406 mm) on center, faced on each side with two layers of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board. On one side, the gypsum board is fastened directly to the studs as specified for interior partitions in Item 14-1.5 of Table 720.1(2) of the IBC; on the other side, resilient furring channels spaced 24 inches (610 mm) on center (see Figure 1) are applied horizontally over the wood studs and are attached using 6d common or $1\frac{1}{4}$ -inch (31.7 mm) wallboard nails or 1-inch-long (25.4 mm), Type W or Type S screws. The $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board is applied horizontally and is attached along

longitudinal edges to the furring channels using 1-inch-long (25.4 mm), Type S screws spaced 12 inches (305 mm) on center. Six-inch-wide (152 mm) strips of gypsum board are installed behind unsupported vertical butt joints and are attached at the ends and along the length of the strips using Type G, 1½-inch-long (38 mm) screws spaced 12 inches (305 mm) on center. A face layer of 5⁄8-inch-thick (15.9 mm), Type X gypsum board is applied with joints staggered from the base layer joints and secured to the resilient furring channels using 1⁵⁄₈-inch-long (41.3 mm), Type S screws spaced 12 inches (305 mm) on center. With this partition, a minimum STC rating of 50 is attained. When desired, glass fiber or mineral wool insulation may be installed in the stud cavities.

4.2.3 Alternate Fire-resistance-rated Construction:

4.2.3.1 Alternate Suspended Ceiling Construction:

Gypsum board ceilings directly attached to steel framing as set forth in Table 720.1(3) of the IBC may be suspended by means of 1½-inch (38 mm), cold-rolled steel, main runner channels, spaced 48 inches (1219 mm) on center, that are suspended with No. 8, SWG galvanized wire hangers spaced 48 inches (1219 mm) on center. Furring channels are placed perpendicular to the cold-rolled steel main runner channels and are secured thereto using No. 18, SWG galvanized wire ties (double strand); the gypsum board is then installed in the manner required for direct attachment.

4.2.3.2 Alternate Gypsum Board Fasteners: Screws, either Type W or Type S, depending on the framing member, may be used in lieu of nails in fire-resistance-rated assemblies described in this report or described in Table 720.1(2) and 720.1(3) of the IBC, provided the screw penetration into the framing member is equivalent to the nail penetration, the screw spacing is the same as the nail spacing, and the cross-sectional area of the screws is equal to that of the specified nails.

4.2.3.3 Joint Treatment: For the fire-resistive assemblies in this report, taping and finishing of joints and fasteners is permitted to be omitted in the following cases:

- Where there is square-edge gypsum board or tongue-and-groove-edge (V-edge) gypsum backing board or gypsum sheathing.
- In single-layer applications on wood-framed assemblies where joints fall over framing members.
- On inner layers and outer layers of multiple-layer wood-framed or steel-framed assemblies, where the joints of adjacent layers are offset from each other.

4.3 Sound Control Systems:

Generic sound control systems, as listed in the Gypsum Association Fire Resistance Design Manual, 18th edition, are recognized for use. Partition systems must be sealed at perimeter and around cut-outs using beads of nonhardening caulking compound, except that tape and joint compound are permitted to be used in lieu of caulking above the top plate in wood-framed systems. Where carpet and pad are specified for the IIC sound rating shown in the manual, the carpet must be a 44-ounce (1492 g/m²) wool carpet with a 40-ounce (1356 g/m²) hair pad.

Except where otherwise noted in this report, any of the gypsum boards listed in Section 3.0, of the same size, thickness, and core type specified, may be used.

4.4 Allowable Partition Heights:

4.4.1 Gypsum Board or Veneer Base: To comply with Section 1607.13 and Table 1604.3 of the IBC, the allowable height limits of non-bearing partitions are as follows:

- Partitions utilizing No. 25 gage [minimum 0.0179 inch (0.454 mm) uncoated base-metal thickness] steel channel

studs conforming to ASTM C 645 must have maximum heights as set forth in a current ICC-ES evaluation report. Mechanical fastening of intermediate studs to the track is not required unless this is specified in the evaluation report.

- 2⁵/₈-inch-thick (67 mm), semi-solid partitions, constructed of ½-inch-thick (12.7 mm) gypsum board face sheets laminated to each side of 1⁵/₈-by-6-inch (41.3 mm by 152 mm) laminated gypsum board studs spaced 2 feet (610 mm) on center, must not exceed 12 feet (3658 mm) in height.
- Demountable walls consisting of 2½-inch-deep (63.5 mm), No. 25 gage, channel-shaped studs complying with ASTM C 645 and spaced 24 inches (610 mm) on center, must not exceed 11½ feet (3505 mm) in height. Full-length sheets of ½-inch-thick (12.7 mm) gypsum board must be installed vertically with edge joints centered on stud flanges. Edge joints must be covered with a metal batten strip attached to the studs using 1-inch-long (25.4 mm), Type S screws spaced 12 inches (305 mm) on center. The gypsum board must be attached to intermediate studs using an approved adhesive.

4.4.2 Lath and Plaster: To comply with Section 1607.13 and Table 1604.3 of the IBC, the allowable height limits of No. 25 gage steel-stud nonbearing partitions are as follows: The steel studs must comply with Item a of Section 4.4.1 of this report. The allowable heights and sectional properties of steel stud systems must be as set forth in a current ICC-ES evaluation report.

4.5 Joint Treatment at Areas to Receive Tile:

Gypsum board joints, including those at all angle intersections, which are under areas to receive tile or wall panels, must be treated with joint compound and tape, but must not be finish-coated. All cut edges and openings around pipes and fixtures must be treated with an approved, water-resistant, flexible compound or caulk. Areas to be tiled that are covered with a joint compound must be skim-coated with bedding adhesive. The bedding adhesive for ceramic tile must conform to ANSI A136.1 for Organic Adhesives for Installation of Ceramic Tile, Type I.

4.6 Exterior Surfaces:

4.6.1 Exterior Ceiling Surfaces:

4.6.1.1 Location: Exterior gypsum soffit board may be used as a ceiling finish at exterior locations such as carports, open porches, walkways, soffits and similar installations that are horizontal or inclined downward away from the building. Gypsum wallboard is permitted for use as a ceiling finish at exterior horizontal applications not exposed to the weather as defined by Section 2502 of the IBC, or Section R702.3.5 of the IRC.

4.6.1.2 Framing: Maximum spacing of framing members must be 16 inches (406 mm) on center when supporting ½-inch-thick (12.7 mm) board, and must be 24 inches (610 mm) on center when supporting 5⁄8-inch-thick (15.9 mm) board. Gypsum board applications perpendicular to framing members must comply with ASTM C 840 (IBC), or Table R702.3.5 of the IRC.

4.6.1.3 Joints: In ceiling areas having long runs, the maximum spacing of expansion joints must be 30 feet (9.144 m). A ¼-inch (6.4 mm) clearance joint is required between gypsum board and adjacent walls, fascia, beams or columns. Fascia boards must extend downward past the ceiling board surface a minimum of ¼ inch (6.4 mm). Exterior gypsum soffit board or gypsum wallboard joints and fastener heads must be provided with joint treatment. An alternate joint treatment is batten strips.

4.6.1.4 Surface Treatment: The exterior gypsum soffit board and the gypsum wallboard as allowed by the applicable code must have one of the following surface treatments applied at the jobsite:

- a. One coat of latex exterior paint applied over an oil-base primer.
- b. Two coats of an oil- or alkyd-based exterior paint.

4.6.2 Exterior Wall Surfaces: Exterior walls must be prepared in accordance with IBC Section 1404.2, or IRC Section R703.2 and Table R703.4, as applicable.

4.7 Roof Assembly Application:

The gypsum board must be covered with an approved underlayment in accordance with IBC Sections 1507.8.3 and 1507.9.3, and IRC Sections R905.7.3 and R905.8.3.

4.8 Thermal Barrier:

Regular gypsum board, a minimum of $\frac{1}{2}$ inch (12.7 mm) thick, is permitted to be used as a thermal barrier in accordance with Sections 2603.4 or 2603.5.2 of the IBC or Section R314.1.2 of the IRC. The gypsum board must be attached in such a manner that it will remain in place for 15 minutes of fire exposure. For walls constructed of wood framing, attachment of the gypsum board in accordance with ASTM C 840 (IBC), or IRC Section R702.3.5, is permitted. For other construction, attachment of the gypsum wallboard must comply with a specific ICC-ES evaluation report, or the method of attachment must be qualified by testing in accordance with UBC Standard 26-3 (UBC); or FM 4880, UL 1040, NFPA 286 or UL 1715 (IBC and IRC).

4.9 Ceiling Diaphragms:

In jurisdictions enforcing the IBC, ceiling diaphragm construction must be in accordance with IBC Section 2508.5

In jurisdictions enforcing the IRC, the following construction is applicable: Allowable shear values for gypsum board ceiling diaphragms that resist wind or earthquake forces are set forth in Table 1 of this report. The ceiling diaphragm is not permitted to laterally support masonry or concrete walls or permanent lateral loads. Framing members must be minimum nominally 2-by-6-inch (50 by 152 mm) members. Values are not cumulative with other horizontal diaphragms. Perimeter nominally 2-by-6 or 2-by-8 (50 by 152 mm or 50 by 203 mm) blocking must be installed flat over the top plate, providing a minimum 2-inch-wide (51 mm) nailing surface for the gypsum board. Nail edge and end distances are a minimum of $\frac{3}{8}$ inch (9.5 mm). The diaphragm height-to-length ratio is a maximum of 2:1, spanning between shear-resisting elements. Rotation or cantilevered conditions are not permitted. Continuous gypsum board end joints parallel to framing members are not permitted.

4.10 Shear Walls:

Table 2 shows maximum allowable shear values for gypsum board shearwalls. Gypsum board must be applied either horizontally or vertically on nominally 2-by-4 (50 by 102 mm) wood studs. Additionally, Section 2505 of the IBC is applicable.

5.0 CONDITIONS OF USE

The gypsum board wall and ceiling assemblies and interior and exterior applications described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the Gypsum Association's published installation instructions and the applicable code. In the event of a conflict between the Gypsum Association's published installation instructions and this report, this report governs.
- 5.2 Partition construction and heights are as set forth in this report. Indicated stud spacings are maximums. Stud sizes (depths) and gages are minimums.
- 5.3 Allowable shear for vertical diaphragms (shearwalls) must be reduced by 50 percent for dynamic loading due to earthquake in Seismic Design Category D in areas adopting the IBC or IRC. In jurisdictions adopting the IBC or IRC, gypsum board must not be used to resist seismic forces in structures in Seismic Design Category E or F.
- 5.4 Documentation must be submitted to the code official verifying that the gypsum board products to be installed comply with the applicable standard noted in Section 3.0 of this report.
- 5.5 Calculations and details must be submitted to the code official for approval of structural-use applications.

6.0 EVIDENCE SUBMITTED

- 6.1 Reports of testing in accordance with ASTM E 119.
- 6.2 Reports of testing in accordance with ASTM E 84 (UBC Standard 7-1).
- 6.3 Reports of transverse load testing in accordance with UL 1296.
- 6.4 Reports of sound transmission testing in accordance with ASTM E 90 and ASTM E 413.
- 6.5 Reports of testing in accordance with ASTM C 473.
- 6.6 Reports of racking shear wall testing in accordance with ASTM E 72.

7.0 IDENTIFICATION

Gypsum boards must be identified by the manufacturer's name, the thickness, the brand name and the ASTM specification. Gypsum board products that have been evaluated by ICC-ES for compliance with the standards indicated in Section 3.0 of this report must also be identified by the ICC-ES report number associated with the specific product.

Bundles of steel studs must be identified as set forth in a current ICC-ES evaluation report on the product. Screws must be identified on the packaging by the name, brand or trademark of the producer or supplier and the ASTM designation.

**TABLE 1—ALLOWABLE SHEAR FOR GYPSUM BOARD APPLIED TO CEILING
FRAMING IN HORIZONTAL DIAPHRAGMS¹ (lb/ft)**

| BOARD THICKNESS (in.) | MINIMUM FASTENER SIZE ^{2,4} | FRAME SPACING (in.) ³ | |
|--------------------------|--------------------------------------|----------------------------------|---------|
| | | 16 o.c. | 24 o.c. |
| 1/2 | 5d cooler or wallboard | 90 | 70 |

For **SI**: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

¹The values are not cumulative with other horizontal diaphragm values. Values must be reduced by 50 percent in IBC Seismic categories D, E and F, and in UBC Seismic Zones 3 and 4.

²Nail spacing is a maximum of 7 inches on center at all supports.

³Solid blocking is required at all gypsum board joints.

⁴1 1/4-inch, No. 6, Type S or W screws are permitted to be substituted for the listed nails.

**TABLE 2—ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES (pounds per foot)
FOR VERTICAL DIAPHRAGMS OF GYPSUM BOARD WOOD-FRAMED WALLS^{1,2}**

| BOARD THICKNESS (in.) | WALL CONSTRUCTION | MINIMUM FASTENER SIZE ³ | MAXIMUM STUD SPACING (in.) | MAXIMUM FASTENER SPACING (in.) | | ALLOWABLE SHEAR VALUE (plf) |
|--------------------------|----------------------|------------------------------------|----------------------------|--------------------------------|-------|-----------------------------|
| | | | | Edges | Field | |
| 1/2 | Unblocked | 5d cooler or wallboard nails | 24 | 7 | 7 | 75 |
| | | | | 4 | 4 | 110 |
| 5/8 | Unblocked | 6d cooler or wallboard nails | 24 | 4 | 4 | 145 |
| 1/2 | Unblocked | No. 6 - 1 1/4-inch screws | 16 | 8 | 12 | 60 |
| 1/2 | Blocked ⁴ | No. 6 - 1 1/4-inch screws | 16 | 4 | 16 | 160 |
| 1/2 | Blocked ⁴ | No. 6 - 1 1/4-inch screws | 16 | 4 | 12 | 155 |
| 1/2 | Blocked ⁴ | No. 6 - 1 1/4-inch screws | 24 | 8 | 12 | 70 |
| 1/2 | Blocked ⁴ | No. 6 - 1 1/4-inch screws | 16 | 6 | 12 | 90 |
| 5/8 | Unblocked | No. 6 - 1 1/4-inch screws | 16 | 8 | 12 | 70 |
| 5/8 | Blocked ⁴ | No. 6 - 1 1/4-inch screws | 16 | 8 | 12 | 90 |

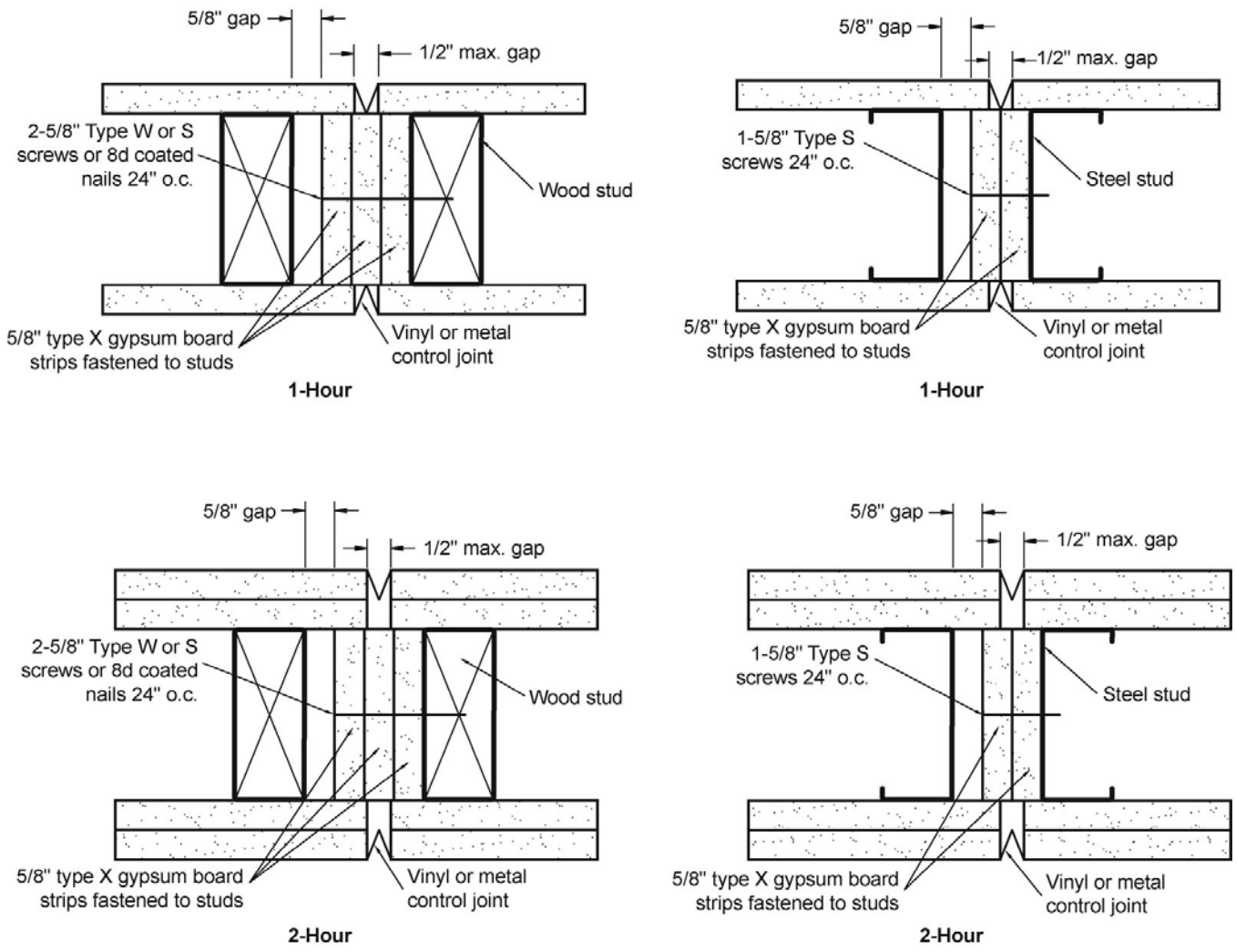
For **SI**: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

¹Shear walls are not permitted to resist loads imposed by masonry or concrete construction. See UBC Section 2513.2 or IBC Section 2306.4. Values are for short-term loading from wind or seismic forces. Values must be reduced by 25 percent for normal loading. The values must be reduced by 50 percent in UBC Seismic Zones 3 and 4. When used in conjunction with the IBC, the values must be reduced by 50 percent in Seismic Design Category D. Values must not be used in IBC Seismic Design Categories E and F.

²The shear values are permitted to be additive when identical materials applied as specified in the table are applied to both sides of the wall.

³Screws must be Type W or Type S drywall screws.

⁴All board edges must be blocked.



For **SI**: 1 inch = 25.4 mm.

FIGURE 1—CONTROL JOINT DETAILS